CONTENTS

Vol. 62, Issue Nos. 173–174

Journal of Polymer Science

ISSUE NO. 173, NOVEMBER

SHIN-ICHI ISHIDA: Stereospecific Polymerization of Acetaldehyde. Part I 1

BERT H. CLAMPITT and ARTHUR P. MUELLER: Polymerization of 2,4,6-Triallyloxypyrimidine 15

C. G. OVERBERGER and E. B. DAVIDSON: Monomers and Polymers Containing the Trifluoromethyl Group 23

P. W. MORGAN and S. L. KWOLEK: Interfacial Polycondensation. XII. Variables Affecting Stirred Polycondensation Reactions .. 33

J. E. MULVANEY, J. J. BLOOMFIELD, and C. S. MARVEL: Polybenzborimidazolines 59

H. C. BEACHELL and J. C. SPITSBERGEN: Kinetics of the Thermal Oxidation of Butadiene-Acrylonitrile Copolymer 73

HAROLD W. WYCKOFF: X-Ray and Related Studies of Quenched, Drawn, and Annealed Polypropylene 83

A. M. KOTLIAR: Evaluation of the Molecular Weight Distribution and Crosslink Density of the Sol and Gel Components by Intrinsic Viscosity Measurements 115

NIICHIRO TOKURA, MINORU MATSUDA, and YASUAKI WATANABE: The Polymerization Reaction in Liquid Sulfur Dioxide. Part VIII. The Effect of Aromatic Compounds on the Cationic Polymerization of Styrene in Liquid Sulfur Dioxide 135

V. F. HOLLAND, S. B. MITCHELL, W. L. HUNTER, and P. H. LINDENMEYER: Crystal Structure and Morphology of Polyacrylonitrile in Dilute Solution 145

ALBERT ZILKHA and Y. KATZ: Effect of Solvents on the Molecular Weight of Polyacrylonitrile Obtained by Anionic Catalysis 153

T. ALFREY, JR., and W. G. LLOYD: Network Polymers. I. Theoretical Remarks 159

IRWIN H. BILLICK: Effects of Hydrostatic Pressure on Boundary Spreading in Sedimentation Velocity Experiments 167

M. WALES and S. J. REHFELD: Molecular Weight Distribution by Velocity Ultracentrifugation 179

F. A. BOVEY. Polymer NMR Spectroscopy. VI. Methyl Meth-

acrylate–Styrene and Methyl Methacrylate–α-Methylstyrene Copolymers 197
A. R. Shultz, N. Knoll, and G. A. Morneau. Trifluoronitrosomethane/Tetrafluoroethylene Copolymer: Degradation by Heat and by Radiation 211
Shiro Takashima: Dielectric Properties of Water of Adsorption on Protein Crystals 233
G. W. Bailey: Electron Microscope Studies on Polyethylene and Polypropylene 241
V. Kokle, F. W. Billmeyer, Jr., L. T. Muus, and E. J. Newitt: The Molecular Structure of Polyethylene. XI. Weight- and Number-Average Molecular Weights of Selected Samples 251

LETTERS TO THE EDITORS

C. G. Overberger, S. Ishida, and H. Ringsdorf: Intra-Intermolecular Polymerization of Glutaraldehyde S1
Richard S. Stein: On the Dynamic Light Scattering from Polymer Films S2
C. Y. Liang: On the Possibility of the $O_6....O'_2$ Intramolecular Hydrogen Bond in Cellulose I Crystal S5
Leo A. Wall and Ronald B. Ingalls: Crosslinking of Polymers Induced by Excited Species S5

NOTES

Malcolm L. Williams: Upper Limit of the Shear Modulus Calculated from the Rouse Theory S7
G. Henrici-Olivé and S. Olivé: Alkali Phosphides as Polymerization Catalysts S8
Atsuo Nishioka, Yoshinori Kato, and Hisao Mitsuoka: Proton Magnetic Resonance Spectra of Paraxylylene-Methylmethacrylate Copolymer in Chloroform Solution S9
Atsuo Nishioka, Yoshinori Kato, and Nobuyuki Ashikari: Proton Magnetic Resonance Spectra of Styrene-Methylmethacrylate Copolymer in CCl_4 Solution S10
Lloyd D. Taylor: The Preparation of Crosslinking Mordants .. S12

BOOK REVIEWS

Haematin Enzymes, A Symposium of the International Union of Biochemistry Organized by the Australian Academy of Science, Canberra, J. E. Falk, R. Lemberg, and R. K. Morton, Eds. Reviewed by Lloyd Reyerson S17
The Chemistry of Nucleic Acids, D. O. Jordan. Reviewed by Cornelius F. Strittmatter S18

Progress in High Polymers, Vol. I, J. C. Robb and F. W. Peaker, Eds. Reviewed by W. R. KRIGBAUM S18
The Enzymes of Lipid Metabolism, P. Desnuelle, Ed. Reviewed by M. MORRISON S19
Technique of Organic Chemistry, Vol. I, Physical Methods of Organic Chemistry, Part IV, A. Weissberger, Ed. Reviewed by PANDURANG M. KAMATH S20
The Science of Adhesive Joints, J. J. Bikerman. Reviewed by H. DANNENBERG S21
Biochemical Mechanisms, Lloyd L. Ingraham. Reviewed by HERBERT MORAWETZ S21
Physical Chemistry of Macromolecules, C. Tanford. Reviewed by JULIAN H. GIBBS S22
High Temperature Resistance and Thermal Degradation of Polymers. S.C.I. Monograph No. 13. Reviewed by RONALD F. REINISCH S23
Molecular Orbital Theory for Organic Chemists, A. Streitwieser, Jr. Reviewed by MICHAEL J. S. DEWAR S24
Struktur und Physikalisches Verhalten der Kunststoffe, Karl A. Wolf, Ed. Reviewed by BACON KE S25

ERRATA

LEWIS J. YOUNG: Copolymerization Parameters (article in *J. Polymer Sci.*, **54**. 411, 1961) S15
GEORGE W. PHILLIPS and WAYNE L. CARRICK: Transition Metal Catalysts. VIII. The Role of Oxygen in Ethylene Polymerizations with $AlBr_3$-VX_n-$Sn(C_6H_5)_4$ Catalyst (article in *J. Polymer Sci.*, **59**, 401–412, 1962) S15

ISSUE NO. 174, DECEMBER

EDITORIAL

G. G. WANLESS: Analysis of Copolymers by Pyrolysis and Mass Spectrometry 263
H. H. G. JELLINEK: Molecular Size Distributions and Average Chain Lengths of Photodegraded Polymer Films 281
A. KELLER, W. MATREYEK, and F. H. WINSLOW: Halogenation of Polyethylene Single Crystals 291
W. G. LLOYD and T. ALFREY, JR.: Network Polymers. II. Experimental Study of Swelling 301
SHIRLEY SHYLUK: Elution Fractionation of Atactic and Isotactic Polypropylene 317
LEONARD E. AMBORSKI: Structural Dependence of the Electrical Conductivity of Polyethylene Terephthalate 331
B. D. SAKSENA, K. C. AGARWAL, and G. S. JAUHRI: Infrared Spectrum of Cellulose I in Relation to its Structure 347

B. L. Funt and K. C. Yu: Electroinitiated Polymerization of Methyl Methacrylate in a Homogeneous Medium 359
C. S. Marvel, T. K. Dykstra, and F. C. Magne: Some Polymers and Copolymers of Vinyl Ketostearates 369
Tod W. Campbell and Ernst A. Tomic: Polythiosemicarbazides. I. Preparation and Properties of the Polymers and Some Simple Metallic Chelates 379
Ernst A. Tomic, Tod W. Campbell, and Veronika S. Foldi: Polythiosemicarbazides. II. Effect of Chemical Structure on Chelating Properties. Structure of the Chelates 387

LETTERS TO THE EDITORS

Yōzō Chatani, Takeo Takizawa, and Shunsuke Murahashi: Crystal Structures of Polyketones (Ethylene/Carbon Monoxide Copolymers) S27
E. J. Arlman: Chlorine Vacancies in Transition Metal Chlorides and Stereospecific Polymerization of α-Olefins S30
R. Zannetti, P. Manaresi, and L. Baldi: β-Absorption and Glass Transitions in Polymers S33
Catherine S. Hsia Chen: Solid-State Polymerization of Acenaphthylene Induced by Ionizing Radiation S38
Tsuyoshi Ohnishi: Anomalous Rheological Behaviors of Muscle Proteins S42
John Boor, Jr.: Some New Experimental Evidence Bearing on the Nature of the Active Site in a Ziegler Polymerization S45
P. F. Erhardt and D. G. LeGrand: Rheo-Optical Properties of Polymers. II S47
Lloyd D. Taylor: The Preparation of a Novel Polymer S48
B. Maxwell and J. C. Galt: Velocity Profiles for Polyethylene Melt in Tubes S50
A. Turner-Jones: The Triclinic Crystal Form of Polymethylenes and Polyethylenes S53
F. Ascoli and C. Botré: Amphoteric Behavior of a Copolymer: *N,N*-diethylallylamine-acrylic acid S56
A. Peterlin, E. W. Fischer, and Chr. Reinhold: Thermodynamic Theory of Finite Thickness of Polyethylene Crystals .. S59
T. Miyazawa, Y. Masuda, and K. Fukushima: Chain Configuration and Amide V Band of Polypeptides S62
Nicky Beredjick and Herman E. Ries, Jr.: Monomolecular Films of Stereoblock Polymethyl Methacrylate and Related Isomers S64
F. C. Leavitt and L. U. Matternas: The Addition of Organotin Hydrides to Diacetylenic Compounds S68
J. Boor, Jr. and J. C. Mitchell: Apparent Nucleation of a Crystal-Crystal Transition in Poly-1-Butene S70

MARION B. RHODES, DANIEL A. KEEDY, and RICHARD S. STEIN: The Use of a Laser as a Light Source for Photographic Light Scattering from Polymer Films S73
HARUAKI WATANABE, RYUZO KOYAMA, HIROSHI NAGAI, and ATSUO NISHIOKA: Crystalline Polymer of Isopropenyl Methyl Ketone S74
SHUNSUKE MURAHASHI, HEIMEI YÛKI, TAKEZÔ SANO, UTAMI YONEMURA, HIROYUKI TADOKORO, and YÔZÔ CHATANI. Isotactic Polyvinyl Alcohol S77
A. D. KETLEY: Interfacial Polymerization of Isobutylvinyl Ether S81
MARION B. RHODES and RICHARD S. STEIN: The Low Angle Light Scattering of Polytetrafluoroethylene Films S84
R. S. STEIN, D. A. KEEDY, J. POWERS, and A. PLAZA: A Theoretical Calculation of the Anisotropy of Poly *n*-Butene-1 Crystals and of Some Cycloparaffins S89
SAMUEL C. TEMIN: Polymerizability of Substituted Tetrahydrofurans and other Ring Compounds S91
P. MUNK and N. NIKOLAEVA: Reversible Changes of Streaming Birefringence of Deoxyribose Nucleic Acid with Time S92
HIROSHI NAGAI, HARUAKI WATANABE, and ATSUO NISHIOKA: Infrared Spectra of Deuterated Polymethyl Methacrylates S95
A. M. KOTLIAR: A Generalized Method for Evaluating the Molecular Weight Distribution and Molecular Weight Averages for Polymers Undergoing Random Scission S98
CHARLES A. LEVINE and GUY H. HARRIS: Formation of Ketene-Imine in Acrylonitrile Polymerization S100
SHIROH SATOH, RIICHIRÔ CHÛJÔ, TOSHIO OZEKI, and EIICHI NAGAI: High Resolution NMR Spectra of Polypropylene S101
A. P. FIRSOR, B. N. KASHPROV, YU V. KISSIN and N. M. CHIRKOV: The Dependence of the Stereospecific Action of the Complex Catalyst α-$TiCl_3$–$Me(C_2H_5)_n$ during the Polymerization of α-Olefins on the Metal in the Metalloorganic Compound S104
W. L. HAWKINS and MRS. M. A. WORTHINGTON: Carbon Black as a Catalyst in the Oxidation of Antioxidants S106

NOTES

E. W. MERRILL, H. S. MICKLEY, and A. RAM: Degradation of Polymers in Solution Induced by Turbulence and Droplet Formation S109
R. G. MEISENHEIMER and T. F. SCHATZKI: Surface Tension of Polystyrene Solutions S113
JAN A. HERMAN and PIERRE ROBERGE: X-Ray Induced Polymerization of Vinyl Iodide in Solution S116

J. K. Stille and David W. Thomson: The Cyclocopolymerization of 1,5-Hexadiene and Sulfur Dioxide S118
H. D. Noether: Orientation of Sodium Sulfate Crystals by Polymer Fiber Spinning S120
Roy L. Whistler and James L. Goatley: Starch-Polyacrylamide Grafts by Ball Milling S123
S. Bywater: Effect of Light Intensity on the Photopolymerization of Methyl Methacrylate above 100° S125
A. G. Massey and L. E. Orgel: Polymerization of Acrylonitrile by Metal Carbonyls S126
C. A. Barson: The Radical Copolymerization of Styrene and Cinnamic Acid S128
D. Chakrabartty and B. N. Ghosh: Studies on Inorganic Polymers. Kinetics of the Bulk Polymerization of Trimeric Phosphonitrilic Chloride S130
Richard H. Wiley and Burns Davis: Monomer Reactivity Ratios for Styrene–Methyl-^{14}C Methacrylate Copolymerization S132
W. F. Benusa: A Study of the Bueche-Harding Shear Method for Measuring Molecular Weights S133
D. McIntyre, L. C. Williams, P. E. Hexner, H. G. Kim, F. N. Weber, R. F. Bunting, and D. W. Kupke: Comparative Measurements on Polystyrene with Three Different Equilibrium Ultracentrifuges S136
Richard H. Wiley and Burns Davis: Monomer Reactivity Ratios for the Styrene–2,5-Dichlorostyrene Copolymerization S140
C. G. Baumann and D. J. Metz: Gamma Radiation Induced Polymerization of Alpha-Methylstyrene. The Effect of Water on Molecular Weight Distribution S141
M. Berger: A Note Regarding Thermodynamics of Crystalline Copolymers S145
Tatsuo Miyazawa, Kunio Fukushima, and Yoshiko Ideguchi: Helical Conformation and Molecular Vibrations of Polyethylene Glycol S146
W. C. Tincher: On Determination of the Tacticity of Polyvinyl Chloride from High Resolution NMR Spectra S148
T. Somcynsky and D. Patterson: The Glass Transition and the Reduced Temperature of Polymeric Liquids S151
Makoto Yanaka and L. Rebenfeld: Evidence of the Existence of Three Different Free Hydroxyl Groups in Acetone-Soluble Cellulose Acetate S155
V. S. R. Rao: Determination of the Intrinsic Viscosity at the Theta Point and Molecular Weight of a Linear Polymer from Viscosity Measurements in a Non-ideal Solvent S157

IRVING ROSEN and P. H. BURLEIGH: Syndiotactic (?) Polyacrylonitrile Prepared in an Aldehyde Medium S160
D. W. LEVI, H. T. LEE, and R. J. VALLES: Molecular Weight of Methacrylate Polymers S163
R. RADO and M. LAZÁR: Remarks on the Decomposition of Benzoyl Peroxide in Polymers S167
G. M. BRISTOW: The Huggin's k′ Parameter Polyisoprenes S168
N. L. ZUTTY, F. P. REDING, and J. A. FAUCHER: Mechanical Behavior of Poly(Stilbestrol Carbonate) S171
VALERIO MAGNASCO and MARCO ROSSI: A Simple Determination of Low Molecular Weights by Infrared Absorption S172
A. V. TOBOLSKY, D. KATZ, R. THACH, and R. SCHAFFHAUSER: Rubber Elasticity in a Highly Crosslinked System S176
A. M. KOTLIAR and S. PODGOR: Correlation of the Change in the Intrinsic Viscosity with Random Crosslinking S177

ERRATUM

Structure und Physikalisches Verhalten der Kunststoffe, Karl A. Wolf, Ed. Reviewed by BACON KE S180

Polymer News S180

Author Index Volume 62 ..... S181

Subject Index Volume 62 ..... S184

AUTHOR INDEX, VOLUME 62

Agarwal, K. C.: see Saksena, B. D.
Alfrey, T., Jr., and Lloyd, W. G.: Network polymers. I. Theoretical remarks, 159
——: see Lloyd W. G.
Amborski, L. E.: Structural dependence of the electrical conductivity of polyethylene terephthalate, 331
Arlman, E. J.: Chlorine vacancies in transition metal chlorides and stereospecific polymerization of α-olefins, S30
Ascoli, F., and Botré, C.: Amphoteric behavior of a copolymer: *N,N*-diethylallylamine-acrylic acid, S56
Ashikari, N.: see Nishioka, A.
Bailey, G. W.: Electron microscope studies on polyethylene and polypropylene, 241
Baldi, L.: see Zannetti, R.
Barson, C. A.: The radical copolymerization of styrene and cinnamic acid, S128
Baumann, C. G., and Metz, D. J.: Gamma radiation induced polymerization of alpha-methylstyrene. The effect of water on molecular weight distribution, S141
Beachell, H. C., and Spitsbergen, J. C.: Kinetics of the thermal oxidation of butadiene–acrylonitrile copolymer, 73
Benusa, W. F.: A study of the Bueche-Harding shear method for measuring molecular weights, S133
Beredjick, N., and Ries, H. E., Jr.: Monomolecular films of stereoblock polymethyl methacrylate and related isomers, S64
Berger, M.: A note regarding thermodynamics of crystalline copolymers, S145
Billick, I. H.: Effects of hydrostatic pressure on boundary spreading in sedimentation velocity experiments, 167
Billmeyer, F. W., Jr.: see Kokle, V.
Bloomfield, J. J.: see Mulvaney, J. E.
Boor, J., Jr.: Some new experimental evidence bearing on the nature of the active site in a Ziegler polymerization, S45
——, and Mitchell, J. C.: Apparent nucleation of a crystal-crystal transition in poly-1-butene, S70
Botré, C.: see Ascoli, F.
Bovey, F. A.: Polymer NMR spectroscopy. VI. Methyl methacrylate–styrene and methyl methacrylate–α-methylstyrene copolymers, 197
Bristow, G. M.: The Huggin's k' parameter polyisoprenes, S168
Bunting, R. F.: see McIntyre, D.
Burleigh, P. H.: see Rosen, I.
Bywater, S.: Effect of light intensity on the photopolymerization of methyl methacrylate above 100°, S125
Campbell, T. W., and Tomic, E. A.: Polythiosemicarbazides. I. Preparation and properties of the polymers and some simple metallic chelates, 379
——: see Tomic, E. A.
Carrick, W. L.: see Phillips, G. W.
Chakrabartty, D., and Ghosh, B. N.: Studies on inorganic polymers. Kinetics of the bulk polymerization of trimeric phosphonitrilic chloride, S130
Chatani, Y., Takizawa, T., Murahashi, S.: Crystal structures of polyketones (ethylene/carbon monoxide copolymers), S27
——: see Murahashi, S.
Chen, C. S. H.: Solid-state polymerization of acenaphthylene induced by ionizing radiation, S38
Chirkov, N. M.: see Firsor, A. P.
Chûjô, R.: see Satoh, S.
Clampitt, B. H., and Mueller, A. P.: Polymerization of 2,4,6-triallyloxypyrimidine, 15
Davidson, E. B.: see Overberger, C. G.
Davis, B.: see Wiley, R. H.
Dykstra, T. K.: see Marvel, C. S.
Erhardt, P. F., and LeGrand, D. G.: Rheo-optical properties of polymers. II., S47
Faucher, J. A.: see Zutty, N. L.
Firsor, A. P., Kashprov, B. N., Kissin, Y. V., and Chirkov, N. M.: The dependence of the stereospecific action of the complex catalyst α-$TiCl_3$-$Me(C_2H_5)_n$ during the polymerization of α-olefins on the metal in the metalloorganic compound, S104
Fischer, E. W.: see Peterlin, A.
Foldi, V. S.: see Tomic, E. A.
Fukushima, K.: see Miyazawa, T.
Funt, B. L., and Yu, K. C.: Electro-initiated polymerization of methyl methacrylate in a homogeneous medium, 359
Galt, J. C.: see Maxwell, B.
Ghosh, B. N.: see Chakrabartty, D.
Goatley, J. L.: see Whistler, R. L.
Harris, G. H.: see Levine, C. A.
Hawkins, W. L., and Worthington, Mrs. M. A.: Carbon black as a catalyst in the oxidation of antioxidants, S106
Herman, J. A., and Roberge, P.: X-ray induced polymerization of vinyl iodide in solution, S116
Hexner, P. E.: see McIntyre, D.
Holland, V. F., Mitchell, S. B., Hunter, W. L., and Lindenmeyer, P. H.: Crystal structure and morphology of polyacrylonitrile in dilute solution, 145

Hunter, W. L.: see Holland, V. F.
Ideguchi, Y.: see Miyazawa, T.
Ingalls, R. B.: see Wall, L. A.
Ishida, S.: see Overberger, C. G.
Ishida, S.-I.: Stereospecific polymerization of acetaldehyde. Part I, 1
Jauhri, G. S.: see Saksena, B. D.
Jellinek, H. H. G.: Molecular size distributions and average chain lengths of photodegraded polymer films, 281
Kashprov, B. N.: see Firsor, A. P.
Kato, Y.: see Nishioka, A.
Katz, D.: see Tobolsky, A. V.
Katz, Y.: see Zilkha, A.
Keedy, D. A.: see Rhodes, M. B.
——: see Stein, R. S.
Keller, A., Matreyek, W., and Winslow, F. H.: Halogenation of polyethylene single crystals, 291
Ketley, A. D.: Interfacial polymerization of isobutylvinyl ether, S81
Kim, H. G.: see McIntyre, D.
Kissin, Y. V.: see Firsor, A. P.
Knoll, N.: see Shultz, A. R.
Kokle, V., Billmeyer, F. W., Jr., Muus, L. T. and Newitt, E. J.: The molecular structure of polyethylene. XI. Weight- and number-average molecular weights of selected samples, 251
Kotliar, A. M.: Evaluation of the molecular weight distribution and crosslink density of the sol and gel components by intrinsic viscosity measurements, 115
——: A generalized method for evaluating the molecular weight averages for polymers undergoing random scission, S98
——, and Podgor, S.: Correlation of the change in the intrinsic viscosity with random crosslinking, S177
Koyama, R.: see Watanabe, H.
Kupke, D. W.: see McIntyre, D.
Kwolek, S. L.: see Morgan, P. W.
Lazar, M.: see Rado, R.
Leavitt, F. C., and Matternas, L. U.: The addition of organotin hydrides to diacetylenic compounds, S68
LeGrand, D. G.: see Erhardt, P. F.
Lee, H. T.: see, Levi, D. W.
Levi, D. W., Lee, H. T., and Valles, R. J.: Molecular weight of methacrylate polymers, S167
Levine, C. A., and Harris, G. H.: Formation of ketene-imine in acrylonitrile polymerization, S100
Liang, C. Y.: On the possibility of the $O_6 \ldots O'_2$ intramolecular hydrogen bond in cellulose I crystal, S5
Lindenmeyer, P. H.: see Holland, W. L.
Lloyd, W. G., and Alfrey, T. Jr.: Network polymers. II. Experimental study of swelling, 301
——: see Alfrey, T., Jr.
McIntyre, D., Williams, L. C., Hexner, P. E., Kim, H. G., Weber, F. N., Bunting, R. F., and Kupke, D. W.: Comparative measurements on polystyrene with three different equilibrium ultracentrifuges, S136
Magnasco, V., and Rossi, M.: A simple determination of low molecular weights by infrared absorption, S172
Magne, F. C.: see Marvel, C. S.
Manaresi, P.: see Zannetti, R.
Marvel, C. S., Dykstra, T. K., and Magne, F. C.: Some polymers and copolymers of vinyl ketostearates, 369
——: see Mulvaney, J. E.
Massey, A. G., and Orgel, L. E.: Polymerization of acrylonitrile by metal carbonyls, S126
Masuda, Y.: see Miyazawa, T.
Matreyek, W.: see Keller A.
Matsuda, M.: see Tokura, N.
Matternas, L. U.: see Leavitt, F. C.
Maxwell, B., and Galt, J. C.: Velocity profiles for polyethylene melt in tubes, S50
Meisenheimer, R. G., and Schatzki, T. F.: Surface tension of polystyrene solutions, S113
Merrill, E. W., Mickley, H. S., and Ham, A.: Degradation of polymers in solution induced by turbulence and droplet formation, S109
Metz, D. J.: see Baumann, C. G.
Mickley, H. S.: see Merrill, E. W.
Mitchell, S. B.: see Holland, V. F.
Mitsuoka, N.: see Nishioka, A.
Miyazawa, T., Masuda, Y., and Fukushima, K.: Chain configuration and amide V band of polypeptides, S62
——, Fukushima, K., Ideguchi, Y.: Helical conformation and molecular vibrations of polyethylene glycol, S146
Morgan, P. W., and Kwolek, S. L.: Interfacial polycondensation. XII. Variables affecting stirred polycondensation reactions, 33
Morneau, G. A.: see Shultz, A. R.
Mueller, A. P.: see Clampitt, B. H.
Mulvaney, J. E., Bloomfield, J. J., and Marvel, C. S.: Polybenzborimidazolines, 59
Munk, P., and Nikolaeva, N.: Reversible changes of streaming birefringence of deoxyribose nucleic acid with time, S92
Murahashi, S., Yuki, H., Sano, T., Yonemura, U., Tadokoro, H., and Chatani, Y.: Isotactic polyvinyl alcohol, S77
——: see Chatani, Y.
Muus, L. T.: see Kokle, V.
Nagai, E.: see Satoh, S.
Nagai, H., Watanabe, H., and Nishioka, A.: Infrared spectra of deuterated polymethyl methacrylates, S95
——: see Watanabe, H.
Newitt, E. J.: see Kokle, V.
Nikolaeva, N.: see Munk, P.
Nishioka, A., Kato, Y., and Ashikari, N.: Proton magnetic resonance spectra of styrene–methylmethacrylate copolymer in CCl_4 solution, S10
——, Kato, Y., and Mitsuoka, N.: Proton magnetic resonance spectra of para-xylylene–methylmethacrylate copolymer in chloroform solution, S9

——: see Nagai, H.
——: see Watanabe, H.
Noether, H. D.: Orientation of sodium sulfate crystals by polymer fiber spinning, S120
Ohnishi, T.: Anomalous rheological behaviors of muscle proteins, S42
Olivé, G. H-, and Olivé, S.: Alkali phosphides as polymerization catalysts, S8
Olivé, S.: see Olivé, G. H-.
Orgel, L. E.: see Massey, A. G.
Overberger, C. G., and Davidson, E. B.: Monomers and polymers containing the trifluoromethyl group, 23
——, Ishida, S., and Ringsdorf, H.: Intra-intermolecular polymerization of glutaraldehyde, S1
Ozeki, T.: see Satoh, S.
Patterson, D.: see Somcynsky, T.
Peterlin, A., Fischer, E. W., and Reinhold, Chr.: Thermodynamic theory of finite thickness of polyethylene crystals, S59
Phillips, G. W., and Carrick, W. L.: Transition metal catalysts. VIII. The role of oxygen in ethylene polymerizations with $AlBr_2$-VX_n-$Sn(C_6H_5)_4$ catalyst (article in *J. Polymer Sci.*, **59**, 401–412, 1962), S15
Plaza, A.: see Stein, R. S.
Podgor, S.: see Kotliar, A. M.
Powers, J.: see Stein, R. S.
Rado, R., and Lazar, M.: Remarks on the decomposition of benzoyl peroxide in polymers, S167
Ram, A.: see Merrill, E. W.
Rao, V. S. R.: Determination of the intrinsic viscosity at the theta point and molecular weight of a linear polymer from viscosity measurements in a non-ideal solvent, S157
Rebenfeld, L.: see Yanaka, M.
Reding, F. P.: see Zutty, N. L.
Rehfeld, S. J.: see Wales, M.
Reinhold, Chr.: see Peterlin, A.
Rhodes, M. B., Keedy, D. A., and Stein, R. S.: The use of a laser as a light source for photographic light scattering from polymer films, S73
——, and Stein, R. S.: The low angle light scattering of polytetrafluoroethylene films, S84
Ries, H. E., Jr.: see Beredjick, N.
Ringsdorf, H.: see Overberger, C. G.
Roberge, P.: see Herman, J. A.
Rosen, I., and Burleigh, P. H.: Syndiotactic (?) polyacrylonitrile prepared in an aldehyde medium, S160
Rossi, M.: see Magnasco, V.
Saksena, B. D., Agarwal, K. C. and Jauhri, G. S.: Infrared spectrum of cellulose I in relation to its structure, 347
Sano, T.: see Murahashi, S.
Satoh, S., Chûjô, R., Ozeki, T, and Nagai, E.: High resolution NMR spectra of polypropylene, S101
Schaffhauser, R.: see Tobolsky, A. V.
Schatzki, T. F.: see Meisenheimer, R. G.
Shultz, A. R., Knoll, N., and Morneau, G. A.: Trifluoronitrosomethane/tetrafluoroethylene copolymer: degradation by heat and by radiation, 211
Shyluk, S.: Elution fractionation of atactic and isotactic polypropylene, 317
Somcynsky, T., and Patterson, D.: The glass transition and the reduced temperature of polymeric liquids, S151
Spitsbergen, J. C.: see Beachell, H. C.
Stein, R. S.: On the dynamic light scattering from polymer films, S2
——, Keedy, D. A., Powers, J., and Plaza, A.: A theoretical calculation of the anisotropy of poly *n*-butene-1 crystals and of some cycloparaffins, S89
——: see Rhodes, M. B.
Stille, J. K., and Thomson, D. W.: The cyclocopolymerization of 1,5-hexadiene and sulfur dioxide. S118
Tadokoro, H.: see Murahashi, S.
Takashima, S.: Dielectric properties of water of adsorption on protein crystals, 233
Takizawa, T.: see Chatani, Y.
Taylor, L. D.: The preparation of cross-linking mordants, S12
——: The preparation of a novel polymer, S48
Temin, S. C.: Polymerizability of substituted tetrahydrofurans and other ring compounds, S91
Thach, R.: see Tobolsky, A. V.
Thomson, D. W.: see Stille, J. K.
Tincher, W. C.: On determination of the tacticity of polyvinyl chloride from high resolution NMR spectra, S148
Tobolsky, A. V., Katz, D., Thach, R., and Schaffhauser, R.: Rubber elasticity in a highly crosslinked system, S176
Tokura, N., Matsuda, M., and Watanabe, Y.: The polymerization reaction in liquid sulfur dioxide. Part VIII. The effect of aromatic compounds on the cationic polymerization of styrene in liquid sulfur dioxide, 135
Tomic, E. A., Campbell, T. W., and Foldi, V. S.: Polythiosemicarbazides. II. Effect of chemical structure on chelating properties. Structure of the chelates, 387
——: see Campbell, T. W.
Turner-Jones, A.: The triclinic crystal form of polymethylenes and polyethylenes, S53
Valles, R. J.: see Levi, D. W.
Wales, M., and Rehfeld, S. J.: Molecular weight distribution by velocity ultracentrifugation, 179
Wall, L. A., and Ingalls, R. B.: Cross-linking of polymers induced by excited species, S5
Wanless, G. G.: Analysis of copolymers by pyrolysis and mass spectrometry, 263
Watanabe, H., Koyama, R., Nagai, H., and Nishioka, A.: Crystalline polymer of isopropenyl methyl ketone, S74
——: see Nagai, H.
Watanabe, Y.: see Tokura, N.
Weber, F. N.: see McIntyre, D.

Whistler, R. L., and Goatley, J. L.: Starch-polyacrylamide grafts by ball milling, S123
Wiley, R. H., and Davis, B.: Monomer reactivity ratios for styrene-methyl-^{14}C methacrylate copolymerization, S132
——, and Davis, B.: Monomer reactivity ratios for the styrene-2,5-dichlorostyrene copolymerization, S140
Williams, L. C.: see McIntyre, D.
Williams, M. L.: Upper limit of the shear modulus calculated from the Rouse theory, S7
Winslow, F. H.: see Keller A.
Worthington, Mrs. M. A.: see Hawkins, W. L.
Wyckoff, H. W.: X-ray and related studies of quenched, drawn, and annealed polypropylene, 83
Yanaka, M., and Rebenfeld, L.: Evidence of the existence of three different free hydroxyl groups in acetone-soluble cellulose acetate, S155
Yonemura, U.: see Murahashi, S.
Young, L. J.: Copolymerization parameters (article in *J. Polymer Sci.*, **54**, 411, 1961), S15
Yu, K. C.: see Funt, B. L.
Yûki, H.: see Murahashi, S.
Zannetti, R., Manaresi, P., and Baldi, L.: β-Absorption and glass transitions in polymers, S33
Zilkha, A., and Katz, Y.: Effect of solvents on the molecular weight of polyacrylonitrile obtained by anionic catalysis, 153
Zutty, N. L., Reding, F. P., and Faucher, J. A.: Mechanical behavior of poly(stilbestrol carbonate), S171

SUBJECT INDEX, VOLUME 62

Acenaphthylene, polymerization induced by ionizing radiation, S38
Acetaldehyde, stereospecific polymerization, 1
Acetone-soluble cellulose acetate, S155
Acrylonitrile polymerization, ketene-imine formation, S100
by metal carbonyls, S126
Addition of organotin hydrides to diacetylenic compounds, S68
$AlBr_3$-VX_n-$Sn(C_6H_5)_4$ catalyst, in ethylene polymerizations, S15
Aldehyde medium, preparation of syndiotactic (?) polyacrylonitrile, S160
Alkali phosphides, as polymerization catalysts, S8
Alpha-methylstyrene, gamma radiation induced polymerization. The effect of water on molecular weight distribution, S141
α-olefins, polymerization on the metal in the metalloorganic compound, S104
stereospecific polymerization, S30
α-$TiCl_3$-$Me(C_2H_5)_n$, stereospecific action, S104
Amide V band, polypeptides, S62
Analysis, of copolymers, by pyrolysis and mass spectroscopy, 263
Anionic catalysis, on molecular weight of polyacrylonitrile, 153
Anomalous rheological behaviors, of muscle proteins, S42
Apparent nucleation, of a crystal-crystal transition, in poly-l-butene, S70
Aromatic compounds, in cationic polymerization, 135
Benzoyl peroxide, decomposition in polymers, S167
β-absorption and glass transitions, in polymers, S33
Birefringence, of deoxyribose nucleic acid, S92
Boundary spreading, in sedimentation velocity experiments, 167
Bueche-Harding shear method, for measuring molecular weights, S133
Butadiene-acrylonitrile copolymer, thermal oxidation, 73
Carbon black, catalyst in the oxidation of antioxidants, S106
CCl_4 solution, proton magnetic resonance spectra, S10
Cellulose I, infrared spectrum, 347
Cellulose I crystal, intramolecular hydrogen bond, S5
Chain configuration, polypeptides, S62
Chlorine vacancies, in transition metal chlorides and stereospecific polymerization of α-olefins, S30
Chloroform solution, proton magnetic resonance spectra, S9
Copolymerization parameters (*erratum*), S15
Correlation of the change in the intrinsic viscosity with random crosslinking, S177
Crosslinking, polymers induced by excited species, S5
Crosslinking mordants, preparation, S12
Crystal structure, of polyketones (ethylene/carbon monoxide copolymers), S27
Crystal structure and morphology, of polyacrylonitrile in dilute solution, 145
Cyclocopolymerization, 1,5-hexadiene, S118
sulfur dioxide, S118
Degradation, by heat and by radiation, on trifluoronitrosomethane/tetrafluoroethylene copolymer, 211
of polymers in solution induced by turbulence and droplet formation, S109
Deoxyribose nucleic acid, reversible changes in streaming birefringence, S92
Dependence of the stereospecific action, of the complex catalyst α-$TiCl_3$-$Me(C_2H_5)_n$ during the polymerization of

α-olefins on the metal in the metallo-organic compound, S104
Determination, intrinsic viscosity at the theta point and molecular weight of a linear polymer from viscosity measurements in a non-ideal solvent, S157
low molecular weights, by infrared absorption, S172
tacticity of polyvinyl chloride from high resolution NMR spectra, S148
Deuterated polymethyl methacrylates, infrared spectra, S95
Diacetylenic compounds, addition of organotin hydrides, S68
Dielectric properties, of water, of adsorption on protein crystals, 233
N,N-diethylallylamine-acrylic acid, amphoteric behavior, S56
Droplet formation, degradation of polymers, S109
Dynamic light scattering, from polymer films, S2
Effect of solvents, on the molecular weight of polyacrylonitrile obtained by anionic catalysis, 153
Effect of water, on molecular weight distribution, S141
Effects of hydrostatic pressure, on boundary spreading in sedimentation velocity experiments, 167
Electroinitiated polymerization, of methyl methacrylate in a homogeneous medium, 356
Electron microscope studies, on polyethylene and polypropylene, 241
Elution fractionation, of atactic and isotactic polypropylene, 317
Ethylene/carbon monoxide copolymers, S27
Existence, of three different free hydroxyl groups in acetone-soluble cellulose acetate, S155
Gamma radiation induced polymerization, of alpha-methylstyrene, S141
Generalized method for evaluating the molecular weight distribution and molecular weight averages, for polymers undergoing random scission, S98
Glutaraldehyde, intra-intermolecular polymerization, S1
Halogenation, of polyethylene single crystals, 291
Huggin's *k'* parameter polyisoprenes, S168
Infrared spectra, of deuterated polymethyl methacrylates, S95
Infrared spectrum, of cellulose I, in relation to its structure, 347
Interfacial polycondensation. XII. Variables affecting stirred polycondensation reactions, 33
Intra-intermolecular polymerization, of glutaraldehyde, S1
Intrinsic viscosity measurements, of sol and gel components, 115
Ionizing radiation, of acenaphthylene, S38
Isobutylvinyl ether, polymerization, S81
Isopropenyl methyl ketone, crystalline polymer, S74
Isotactic polyvinyl alcohol, S77
Ketene-imine formation, in acrylonitrile polymerization, S100
Kinetics, bulk polymerization, S130
thermal oxidation of butadiene-acrylonitrile copolymer, 73
Light intensity, on the photopolymerization, of methyl metacrylate above 100°, S125
Light source for photographic light scattering from polymer films, laser, S73
Linear polymer molecular weight, S157
theta point of, S157
Liquid sulfur dioxide, in cationic polymerization, 135
Mass spectroscopy, analysis of copolymers, 263
Metal carbonyls, polymerization of acrylonitrile, S126
Metallic chelates, preparation and properties, 379
Methacrylate polymer, molecular weight, S163
Methyl methacrylate, electroinitiated polymerization, 356
photopolymerization, S125
Methyl methacrylate-α-methylstyrene copolymer, 197
Methyl methacrylate-styrene copolymer, 197
Molecular size distributions and average chain lengths, of photodegraded polymer films, 281
Molecular structure of polyethylene. XI. Weight- and number-average molecular weights of selected samples, 251
Molecular weight distribution, by velocity ultracentrifugation, 179
Molecular weight distribution and crosslink density, of the sol and gel components, by intrinsic viscosity measurements, 115
Molecular weight distribution and molecular weight averages, for polymers, S98
Monomers and polymers, containing the trifluoromethyl group, 23
Monomer reactivity ratios, the styrene-2,5-dichlorostyrene copolymerization, S140
styrene-methyl-^{14}C methacrylate copolymerization, S132
Muscle proteins, anomalous rheological behaviors, S42
Network polymers. I. Theoretical remarks, 159
II. Experimental study of swelling, 301
New experimental evidence bearing on the nature, of the active site, in a Ziegler polymerization, S45
Non-ideal solvent, viscosity measurements in, S157
Novel polymer, preparation, S48
Oxidation of antioxidants, carbon black catalyst, S106
Oxygen, in ethylene polymerizations, S15
Paraxylylene-methylmethacrylate copolymer, proton magnetic resonance spectra, S9
Photodegraded polymer films, molecular

size distributions and average chain lengths, 281
Polyacrylonitrile, crystal structure and morphology, 145
effect of solvents on molecular weight, 153
Polybenzborimidazolines, 59
Poly-l-butene, apparent nucleation, S70
Polyethylene, crystals, thermodynamic theory, S59
Polyethylene, electron microscope studies, 241
Polyethylene glycol, conformation and molecular vibrations, S146
Polyethylene melts, velocity profiles, S50
Polyethylene single crystals, halogenation of, 291
Polyethylene terephthalate, structural dependence of electrical conductivity, 331
Polyethylene, weight- and number-average molecular weights, 251
Polyketones, crystal structure, S27
Polymer fiber spinning, of sodium sulfate crystals, S120
Polymer films, dynamic light scattering, S2
Polymer NMR spectroscopy. VI. Methyl methacrylate-styrene and methyl methyacrylate-α-methylstyrene copolymers, 197
Polymeric liquids, glass transition and reduced temperature, S151
Polymerizability, of substituted tetrahydrofurans and other ring compounds, S91
Polymerization, of 2,4,6-triallyloxyprimidine, 15
Polymerization catalysts, alkali phosphides, S8
Polymerization reaction in liquid sulfur dioxide. Part VIII. The effect of aromatic compounds on the cationic polymerization of styrene in liquid sulfur dioxide, 135
Polymers, rheo-optical properties. II, S47
Polymethyl methacrylate, monomolecular films, S64
Polymethylenes and polyethylenes, triclinic crystal form, S53
Polypeptides, chain configuration and amide V band, S62
Polypropylene, atactic and isotactic, 317
electron microscope studies, 241
high resolution NMR spectra, S101
quenched, drawn, and annealed, 83
Poly(stilbestrol carbonate), mechanical behavior, S171
Polystyrene, comparative measurements with three equilibrium ultracentrifuges, S136
Polystyrene solutions, surface tension, S113
Polytetrafluoroethylene films, low angle light scattering, S84
Polythiosemicarbazides. I. Preparation and properties of the polymers and some simple metallic chelates, 379
II. Effect of chemical structure on chelating properties. Structure of the chelates, 387
Polyvinyl chloride, tacticity, S148
Possibility of the $0_4 \ldots 0'_2$ Intramolecular hydrogen bond, in cellulose I crystal, S5
Protein crystals, water of adsorption on, 233
Proton magnetic resonance spectra, paraxylylene-methylmethacrylate copolymer, in chloroform solution, S9
styrene-methylmethacrylate copolymer, in CCl_4 solution, S10
Pyrolysis, analysis of copolymers, 263
Radical copolymerization, cinnamic acid, S128
styrene, S128
Random crosslinking, change in the intrinsic viscosity, S177
Random scission, of polymers, S98
Reversible changes, of streaming birefringence of deoxyribose nucleic acid with time, S92
Rouse Theory, on shear modulus, S7
Rubber elasticity, in highly crosslinked system, S176
Sedimentation velocity experiments, 167
Sodium sulfate crystals, orientation by polymer fiber spinning, S120
Sol and gel components, intrinsic viscosity measurements, 115
Solid-state polymerization, of acenaphthylene induced by ionizing radiation, S38
Starch-polyacrylamide grafts, by ball milling, S123
Stereospecific polymerization, of acetaldehyde, 1
Stirred polycondensation reactions, affecting variables, 33
Structural dependence, of electrical conductivity, of polyethylene terephthalate, 331
Structure of the chelates, effect of chemical structure on chelating properties, 387
Studies, on inorganic polymers. Kinetics, of the bulk polymerization of trimeric phosphonitrilic chloride, S130
Styrene, cationic polymerization in liquid sulfur dioxide, 135
Styrene-2,5-dichlorostyrene, copolymerization, S140
Styrene-methylmethacrylate copolymer, proton magnetic resonance spectra, S10
Styrene-methyl-^{14}C methacryalte, copolymerization, S132
Swelling, network polymers, 301
Syndiotactic (?) polyacrylonitrile, prepared in an aldehyde medium, S160
Tetrahydronfurans, polymerizability of, S91
Theoretical calculation, anisotropy of poly *n*-butene-l crystals, S89
some cycloparaffins, S89
Thermal oxidation, butadiene-acrylonitrile copolymer, 73

Thermodynamic theory, of finite thickness of polyethylene crystals, S59
Thermodynamics, of crystalline copolymers, S145
Transition metal catalysts. VII. The role of oxygen in ethylene polymerizations with $AlBr_3$-VX_n-$Sn(C_6H_5)_4$ catalyst (*erratum*), S15
Transition metal chlorides, chlorine vacancies, S30
2,4,6-triallyloxypyrimidine, 15
Trifluoromethyl group, 23
Trifluoronitrosomethane/tetrafluoroethylene copolymer, 211
Trimeric phosphonitrilic chloride, bulk polymerization, S130
Turbulence, degradation of polymers, S109
Upper limit, of the shear modulus calculated from the Rouse Theory, S7
Use of laser, as a light source, for photographic light scattering from polymer films, S73
Velocity ultracentrifugation, 179
Vinyl iodide in solution, x-ray induced polymerization, S116
Vinyl ketostearates, some polymers and copolymers, 369
Water, dielectric properties, 233
X-ray and related studies, of quenched, drawn, and annealed polypropylene, 83
Ziegler polymerization, new experimental evidence, S45